

this trend can be expected to continue unabated and even accelerate in the years ahead.⁶⁴

Based upon this experience, as well as the Ninth Circuit's opinion, the Commission should find that "fundamental unbundling," as the Commission intended it and as the Ninth Circuit defined it, has already taken place and will continue indefinitely, as technology and the ESPs' needs evolve. There is, therefore, no need for the Commission to perform an additional cost/benefit analysis, because its pre-condition to ONA has been fulfilled.

To the extent some parties have advocated a broader "fundamental unbundling" amounting to a complete network rebuild, they are generally companies seeking to enter the local exchange telephone market. They have not shown that they require anything resembling a complete restructuring of the BOCs' networks to provide enhanced services, but instead attempt to use "fundamental unbundling" as a device to handicap the BOCs by making them unable to compete. As such, their comments are not germane to the needs of the ESP community.

In any event, as the Commission has repeatedly found, "fundamental unbundling" of the existing hardware-defined network not only would be extremely expensive -- it would require major network redesign, even if technically feasible -- but it also would disrupt service to existing customers.⁶⁵ Nor would a

⁶⁴ *See id.* at ¶ 24.

⁶⁵ *See, e.g.,* ONA Order at ¶¶ 70-72, Remand Order at ¶ 64.

complete rebuilding of the network produce any benefit. As demonstrated above, experience shows that any legitimate needs of enhanced service providers ("ESPs") are being fully met through existing procedures.

V. The Commission Should Modify Several Nonstructural Safeguards That Create Customer Confusion and Inconvenience, Raise Prices, and Prevent Rapid Deployment of New, Innovative Technology.

Several of the existing nonstructural safeguards are inconsistent with the public interest and should be modified. In particular, the existing rules regarding CPNI serve to confuse and inconvenience customers and should be simplified. The lead times prescribed in the network disclosure rules are unnecessary and prevent the public from enjoying state-of-the-art technology for a number of months after it could otherwise be made available. The cost allocation rules impose artificial costs on unregulated operations and are inconsistent with a competitive marketplace. All should be revised in a way that serves the interests of customers while fully safeguarding competition.

A. **CPNI:** As Bell Atlantic has previously shown, most members of the public are confused and seriously inconvenienced by the notification requirements and restrictions in the CPNI rules.⁶⁶ Whether sent in a bill insert or a separate mailing,

⁶⁶ ***Computer III Remand Proceedings: Bell Operating Company Safeguards; and Tier 1 Local Exchange Company Safeguards***, CC Docket No. 90-623, Supplemental Comments of Bell Atlantic (filed May 5, 1994), Reply Comments of Bell Atlantic (filed May 19, 1994). Copies of these filings appear in Attachment C.

most customers ignore the notifications, considering them either "junk mail" or as just another government intrusion that they do not want to be bothered with. Those few customers that pay attention to the notifications erroneously believe that restricting access to their records will reduce unsolicited telephone calls and mail, both from Bell Atlantic and unaffiliated vendors. They then become upset when they discover that their action has turned a simple contact with the business office into a protracted adventure,⁶⁷ or that they still receive calls from interexchange carriers to change their presubscribed carrier.

In an effort to minimize some of this confusion, Bell Atlantic conducted a series of six focus groups of small business customers in January 1995 to try to develop a notification letter that meets Commission requirements but is easier to understand. Only one of the more than 60 participants, an attorney in Pennsylvania, understood the reasons for the CPNI notification or the result of restricting access. Nearly all the participants characterized the notification process as "confusing," "unnecessary," or "ridiculous." They considered the need to

⁶⁷ As shown in Attachment C, customers with restricted records are angered and confused when they find that they must speak with more than one business office consultant to place a service order, or that they may not easily order voice messaging, because the CPNI rules prevent the consultant who may sell them an enhanced service from accessing their service records.

receive and review the letters each year an inconvenience, and could not understand how their interests were being served.⁶⁸

On the other hand, the competitive benefits from the existing rules are largely illusory. The principal value to Bell Atlantic of access to CPNI is the ability to provide customers with one-stop shopping for non-cellular services and products.⁶⁹ Competitors maintain comprehensive records of their own customers and do not rely on telephone company CPNI. Their principal goal in urging increasingly-restrictive CPNI rules for the BOCs is to raise BOC costs by forcing them to maintain separate basic-only and enhanced sales personnel and to make the BOC more difficult for customers to deal with. They use CPNI as a competitive weapon, not as a source of information.

The Commission can modify the CPNI requirements in a manner that provides customers with more information about their CPNI rights than they currently receive in the annual letter but which avoids much of the existing confusion. The BOCs could be required to print a complete statement of customers' CPNI rights in the information portions of each white pages telephone directory.⁷⁰ Then, once a year, each multi-line business

⁶⁸ Bell Atlantic is developing, and will submit for Commission approval, revised CPNI letters that will reduce, but will by no means eliminate, the customers' confusion.

⁶⁹ As shown above, without one-stop shopping, the demand for mass-marketed services virtually disappears.

⁷⁰ The front portions of Bell Atlantic's directories currently include other types of consumer information and a discussion of privacy policies. CPNI rights could be included in those sections.

customer could be given a brief reminder in a bill imprint to review the applicable rules.

This proposal will avoid the confusion that stems from the present annual notification. The discussion in the directory can be more expansive than the existing bill imprint and should help to allay customers' confusion about the impact of restricting or releasing their records. In addition, including CPNI information in the directory gives customers continuous access to information on their CPNI rights, because customers generally retain directories for the full year. Under the current notification process, by contrast, multi-line business customers receive notices once each year and generally discard them, unread. Finally, printing the CPNI information in the directory provides all customers with this information, not just multi-line business customers.

At the same time, the Commission should return to the pre-1991 rule that affiliated enhanced service sales and marketing personnel should have access to the CPNI of all customers that do not affirmatively restrict their records.⁷¹ There is no evidence that any party is benefitted by the existing

⁷¹ This would bring the rules into line with those that already apply to cable TV competitors. Cable operators and their affiliates are free to use customer information to offer services other than cable TV. In fact, the Cable Act expressly allows cable operators or their commonly owned affiliates to use personally identifiable information in order to provide cable service or any other communications service they offer. 47 U.S.C. § 551 (a)-(c). For example, this provision allows cable operators to use this information to market any telephone services they or their affiliates provide.

rule. Above-20 line customers who must affirmatively authorize Bell Atlantic's enhanced service personnel to view their records, on the other hand, are confused and inconvenienced when they find that their inaction has made it more difficult to obtain the full range of desired telephone company services from a single source. The different rules for CPE and enhanced services merely add to this confusion. The track record, therefore, fully supports modifying the CPNI requirements as proposed above.

B. Network Disclosure: Under the current rules, disclosure of new network interface specifications must be provided at least six months prior to offering services that use the new interface. This advance disclosure period is unnecessary to provide vendors with information that allows them to develop equipment and is inconsistent with the accelerating pace of new technology. New telecommunications developments are being introduced so quickly that a six month waiting period almost ensures that Bell Atlantic is unable to offer its customers services using the most currently-available technology. Accordingly, the advance notification period should be reduced to one month in order to give customers access to current technology and should be eliminated in the case of customer-specified network equipment.

The interface environment has changed significantly since the Commission established the current interface notification requirements. Today, new interface specifications are known to the entire industry well in advance of network

deployment, and a separate disclosure is unnecessary to induce manufacturers to develop equipment to meet those interfaces.

This is a result of several parallel trends:

1. Interfaces for new high speed access/transport technologies or services such as Synchronous Optical Network, ISDN, Fiber Distributed Data Interface, Switched Multi-megabit Data Service and Asynchronous Transfer Mode are based on standards developed in national and international standards bodies. Development of standards takes place under well-defined open processes with participation from all industry representatives, and are widely published.⁷²

2. Where a BOC intends to develop and introduce a new service based on technologies for which there are no existing or emerging standards, that BOC must publicize that technology well in advance in order for manufacturers to develop the needed equipment. For example, no standards existed for the Bell Atlantic's proposed video dialtone basic service interface to the customer's set-top or to the programmer-customer's location. However, Bell Atlantic has conducted the selection/development of the set-top technology in an open environment through a RFQ process. The appropriate technical requirements/specifications were distributed to the vendors who could potentially develop a product to meet Bell Atlantic's requirement more than a year in advance of planned deployment. As the specifications evolve, Bell Atlantic is sending updates to all potential vendors, in order that as many manufacturers as possible can make compatible equipment.

In addition, it is in Bell Atlantic's interest to ensure that all potential programmer-customers are fully aware of all relevant specifications for interconnecting with the video dialtone network sufficiently in advance to participate in the service. The marketplace will, therefore, ensure sufficient

⁷² Bell Atlantic's policy is to deploy only standards-based technology for such services.

advance disclosure without fixed regulatory requirements.⁷³

3. New interfaces based on widely publicized Bellcore Technical References fall into a category that is analogous to standards. These documents are generally publicized in industry journals and are widely available well in advance of BOC service offerings that use those interfaces. For example, some of the BOCs have recently introduced new services based on the Analog Display Services Interface ("ADSI"). Several Bellcore forums sponsored by the BOCs were held to introduce this interface to CPE vendors. The specifications were widely available. By the time any BOC offered services using ADSI, vendors had well over six months' notice of all the interface specifications and were developing compatible equipment. There was no need to delay introduction by issuing a redundant notification.

4. In some cases, customers insist that Bell Atlantic install a particular manufacturer's equipment and have obtained matching CPE made by the same manufacturer. Because the customer has specified both the network equipment and CPE, there is no competitive interest served by this advance disclosure. The only result is to force the customer to wait six months before activating the network.

The above analysis shows that the existing network disclosure rules are unnecessary to ensure the availability of compatible interface equipment and that they delay the availability of new services and inhibit deployment of new technology. Therefore, the Commission should allow the BOCs to implement new network technologies after giving a minimum of one month's public notice, rather than the six months now required, and eliminate the disclosure requirement for customer-specified network equipment.

⁷³ No potential programmer-customer has complained that Bell Atlantic failed to provide interface information sufficiently in advance to permit full participation in the forthcoming video services.

C. Cost Allocations: Current rules significantly over-allocate joint and common costs to unregulated operations. There is no justification for maintaining that mismatch. With all services, regulated and unregulated, becoming increasingly competitive, the Commission should allow the BOCs to treat the allocation of joint and common costs in the same manner as any other competitive firm -- i.e., allow the competitive market to drive prices toward incremental cost.⁷⁴ By forcing unregulated services to bear more than their incremental cost, the Commission's existing rules produce higher prices to the detriment of consumers. In this respect, the Commission's rules are affirmatively anticompetitive and assign costs "not wisely, but all too well."⁷⁵

D. New ONA Services: The Commission requires the BOCs to amend their ONA plans at least 90 days before they may use a new basic service in connection with their enhanced services.⁷⁶ Those amendments are subject to Common Carrier Bureau approval.⁷⁷ This requirement applies even if the service is

⁷⁴ A new proceeding re-examining the joint cost rules is likely to be protracted. Such a proceeding should be initiated separately, and a decision in the instant rulemaking should not await the outcome of the joint cost rule revisions.

⁷⁵ Likewise, the Department of Justice has recognized that incremental cost, rather than the fully distributed cost standard used in the rules, is the appropriate way to measure costs. See Separation of Costs of Regulated Telephone Service from Costs of Non-Regulated Activities, CC Dkt. No. 86-111, Comments of the United States Department of Justice at 18, 27 (June 30, 1986).

⁷⁶ R&O at ¶¶ 221-22.

⁷⁷ *Id.*

already offered and is fully available to competitors. Bell Atlantic's experience has been that the requirement for affirmative approval has delayed Bell Atlantic's ability to use new ONA services well beyond the 90 day Commission target.⁷⁸

There is no reason why a BOC's enhanced service should not have the same ability to use an existing service that is available to its competitors. Such services should be freely available with a simple notification at the time the BOC subscribes to the offering. For new services, the BOC should be required to notify the Commission at the time of tariffing, or no later than 30 days prior to use, that the BOC's enhanced service intends to use the service. These notification requirements will allow the Commission to monitor BOC use of basic services without placing their enhanced services at a disadvantage vis-a-vis their competitors.

VI. The Commission Should Remove Protocol Processing From the Definition of Enhanced Services.

The Commission should eliminate protocol processing from the definition of enhanced services. Unlike the other components of the enhanced service definition, the only function of protocol processing is to facilitate communication. In order for customers with disparate premises terminals or local or wide area networks to communicate with each other, there must be a

⁷⁸ An unopposed request to use Premier Messaging Services Interface has been pending for nearly one year, and an amendment to use video dialtone has been pending since January 1994.

protocol conversion - either at the premises or in the network. No conversion, no communication. The conversion does not affect the content - the words or data that leave one terminal arrive at the distant location unchanged, except for the protocol "envelope" that allows each terminal to communicate with the other.

In the dozen years since the Commission first examined in detail the classification of protocol processing,⁷⁹ and even in the five years since the Commission last examined this issue,⁸⁰ the market and technology for data communications have changed markedly. As discussed above, the value-added data services market has surpassed \$3 billion and is dominated by such multi-national giant companies as IBM, General Electric, British Telecom, and Sprint, while the BOCs' share of this market is relatively insignificant. Any concern that the Commission may have had that the BOCs could engage in anticompetitive conduct that would inhibit growth of this market is no longer applicable.

At the same time, the technological environment has substantially changed in recent years. As shown in Attachment D, no longer is the bulk of protocol processing associated with a personal computer communicating with a remote host database,

⁷⁹ ***Communications Protocols Under Section 64.702 of the Commission's Rules and Regulations, Memorandum Opinion, Order, and Statement of Principles***, 95 F.C.C.2d 584 (1983).

⁸⁰ ***Amendment of Section 64.702 of the Commission's Rules and Regulations, Report and Order***, 2 FCC Rcd 3072 at ¶¶ 45-71 (1987) ("Phase II Order"); ***Memorandum Opinion and Order on Reconsideration***, 3 FCC Rcd 1150 at ¶¶ 21-27 (1988).

which requires asynchronous to X.25 conversion. Today, protocol processing is needed to interconnect sophisticated local and wide area networks and an evolving array of new switched and dedicated high-speed "fast-packet" data services -- services such as Switched Multi-megabit Data Service, Frame Relay, and Fiber Distributed Data Interface. Some of these services are transitional way-stations until the industry evolves to a uniform Asynchronous Transfer Mode ("ATM") standard.

Until a common ATM standard is uniformly implemented, however, connection of disparate terminals to these intermediate services requires protocol conversion. Because the technologies are evolving rapidly, the most economical and convenient location for this conversion is the network, rather than at the terminal. Where protocol conversion in the network was once viewed as simply a way of connecting remote terminals to an X.25 host, it is now essential to provide a graceful, economical migration to a ATM-based broadband network.⁸¹ Economic impediments to this migration, occasioned by the increased prices that accompany the current comparably efficient interconnection requirements for the

⁸¹ Although the Commission has said that it will favor waivers to permit BOCs to provide protocol conversions as basic, **See** Phase II Order at ¶ 70, Computer III waivers generally take a considerable time before they are granted. The time delay in obtaining such waivers in light of rapidly-evolving technology makes this remedy unworkable and burdensome to both the Commission and the carriers.

pricing of enhanced protocol conversion, will only slow the pace of broadband technology development and deployment.⁸²

VII. Conclusion.

The Commission should promptly reject arguments that favor a return to structural separation and confirm the adequacy of its non-structural safeguards, subject to the changes outlined above.

Respectfully submitted,

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⁸² To accomplish this revision, the Commission should revise the first clause of the definition of enhanced services, 47 C.F.R. § 64.702(a), as follows:

... that act on the ~~format, content, code~~
~~protocol or similar aspects~~ of the
subscriber's transmitted information;...

ATTACHMENT A

**BENEFITS AND COSTS OF VERTICAL INTEGRATION OF BASIC
AND ENHANCED TELECOMMUNICATIONS SERVICES**

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BENEFITS AND COSTS OF VERTICAL INTEGRATION OF BASIC AND ENHANCED TELECOMMUNICATIONS SERVICES

I. Introduction

The FCC is in the process of reviewing its policies to determine the form in which the Bell Operating Companies (BOCs) may participate in the enhanced services market.¹ FCC regulation of enhanced services has previously addressed two potential problems, cross subsidization and access discrimination. The FCC has established two regulatory measures that significantly reduce the risk of cross subsidization. Price cap regulation, which breaks the link between direct costs and rate changes, does not allow the BOCs to raise prices above the rate caps approved by the FCC. The BOCs, therefore, do not have the incentive to set lower rates for regulated services used in the provision of enhanced services in the hope that they can increase prices for other regulated services. In addition, the FCC has implemented cost accounting rules, including detailed joint cost rules, cost allocation manuals, reporting requirements and accounting audits, that increase the ability to identify cross subsidization.

Access discrimination can arise when preferential network access is given to an BOC's affiliated enhanced services provider over a non-affiliated enhanced service provider. The FCC decided that network unbundling, in the form of discrete cost-based services and features, for services required to provide enhanced services would insure that BOCs could not discriminate against their competitors. The FCC's Open Network Architecture (ONA) framework and its unbundling policy were designed to accomplish network unbundling for features used by non-affiliated enhanced services providers to compete with the BOCs. In its recent remand decision, the Ninth Circuit required the FCC to explain and justify its decision to allow BOCs to offer all enhanced services on an integrated basis, given the current state of unbundling.² The FCC's investigation is, however, broader in scope than the minimum requirements set out by the Ninth

¹Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services, CC Docket No. 95-20, Notice of Proposed Rulemaking (released February 21, 1995).

²California v. FCC, 39 F.3d 919 (9th Cir. 1994) ("California III")

Circuit. An important factor in the FCC's reconsideration will be determining whether the economic benefits to be gained by permitting vertical integration of BOC basic and enhanced services exceed the possible costs imposed on consumers of not requiring structural separation.

This paper identifies and quantifies the potential benefits and costs of vertical integration of basic and enhanced telecommunications services. In particular, we find that joint production facilitates the offering of new products and services, which provide large benefits to consumers. Focusing on voice messaging -- to date the most prominent Regional Bell Operating Company enhanced service -- we calculate that the delay in making this service available has cost consumers well over \$1 billion annually. The cost to consumers of delay has exceed well over \$10 billion since 1981. In addition, the extra production costs that would be incurred by foregoing the economies of scope from joint production would amount to over \$100 million annually. In contrast, (1) the enhanced service markets in which the BOCs operate are robustly competitive, (2) the existing Open Network Architecture rules followed by the BOCs are designed to offer nondiscriminatory access at prices that avoid cross-subsidies, and (3) all available evidence shows that these rules are working as intended and that the enhanced service market is thriving. It is clear that any benefits to competition that may arise from structural separation are far outweighed by the loss of benefits and extra costs we have identified which arise from structural separation.

The remainder of this paper has five sections. We first describe the economic principles that should guide telecommunications competition. In Section III, we examine the state of competition in information and enhanced services markets. Next, in Section IV, we measure the benefits from offering new telecommunications services. Section V quantifies the costs of structural separation. The final section summarizes our findings.

II. Economic Principles for Economically Efficient Competition

Telecommunications markets are generally very dynamic, compared to most other markets. Products are proliferating, new firms are joining the fray, and existing firms are adjusting through alliances, mergers, and the like. The market for enhanced telecommunications services is no exception. For voice messaging, which accounts for the bulk of the BOCs' enhanced service revenues, Frost & Sullivan estimated that 1993 revenues from voice messaging services were \$1.4

billion and that the market is expected to grow at a rate of 12.7 percent annually through the year 2000.³ In addition, revenues from competing voice messaging CPE are an equivalent amount and are growing at double digit rates.⁴ In total, voice messaging revenues are approaching \$3 billion annually. Further, there are literally thousands of firms providing voice messaging services, and the BOCs are far from enjoying a dominant position. For dynamic markets like these, it is especially important that firms be able to compete on their own merits, absent regulatory rules that help or hinder particular firms. In this section, we discuss the economic principles for efficient competition in dynamic markets.

A. Telecommunications competition (including enhanced services markets) is characterized by firms competing on the basis of unique scope economies

Telecommunications has always been characterized by economies of joint production, or scope economies. With the convergence of industries -- telephony, information, etc. -- the importance of scope economies is even greater. For example, AT&T has recently acquired McCaw, which provides cellular services, including voice messaging; Sprint has formed a venture with major cable television firms, and was the high bidder at the recently concluded broadband PCS spectrum auction. Clearly, although the BOCs have long possessed economies of scope, other competing firms have their own unique economies. To provide the greatest benefits to consumers, it is essential that all firms be able to employ these economies. The results of this type of competition are lower prices for consumers and greater availability of new services in a timely fashion. Measures that unduly restrict the employment of scope economies, such as onerous structural separation requirements, will reduce the benefits from competition and harm consumers.

Economists are close to unanimous in believing that, whenever feasible, effective competition produces results superior to those of comprehensive economic regulation. The potential benefits of introducing competition into regulated markets generally are of two major

³Frost & Sullivan, U.S. Voice Messaging Service Markets, Report 5172-63 (Dec. 1994).

⁴NATA, 1993-94 Telecommunications Market Review and Forecast 171 (1994).

kinds: moving prices into closer correspondence with economic costs, and dynamic improvements in productive efficiency and in product or service offerings. Competition will concentrate on the services whose prices are held above marginal or incremental costs and tend to drive those prices down to the economically proper and efficient levels. Competition also tends -- unless it is distorted by regulation -- to improve the efficiency with which services are provided, by weeding high-cost firms out of the market and by exerting pressure on the survivors to improve the quality of their offerings and to be innovative in developing and offering new services and service combinations. Thus, telecommunications regulation should allow firms to employ their economies of scope so that services can be produced at minimum cost, and should allow these firms to be free to introduce innovative services which creates large gains in consumer welfare.

III. BOC Participation in the Enhanced Services Market Has Led to Lower Prices and Greater Output

BOC participation in the enhanced services market has been good for consumers. Consumer welfare increases when prices decrease. In the voice messaging services segment, which is the primary segment of current BOC participation, prices have decreased significantly since BOC entry. The range of the price decrease has been from about \$30 per month in 1990 to \$5-15 per month currently. An additional increase in consumer welfare arises when a new product is offered to a segment of consumers for the first time. BOC success in offering voice messaging to the "mass market" of residential and small business customers has been phenomenal. Over the past 5 years BOC subscriptions have increased from essentially zero to over 6 million subscriptions.⁵ Growth for the rest of the decade is forecast at around 12 percent per year. No anticompetitive effect has occurred in voice messaging or other segments of the enhanced services market. Thus, BOC participation has been pro-competitive and has increased consumer welfare.⁶

⁵"Voice Messaging," Telephony, Feb. 20, 1995, at 23.

⁶For BOC entry to have an anticompetitive effect, output would need to be lower than it would have been if the BOCs had been prohibited from participation. No party can seriously claim that output would have been higher without BOC participation. Effects on individual

The regulatory road for the BOCs to provide enhanced services has been long and tortuous. In 1981 AT&T applied to the FCC for permission to provide "Custom Calling II" services, which included voice messaging services, on an unseparated basis.⁷ However, the FCC rejected AT&T's request. Subsequent to the FCC's negative decision, the Modification of Final Judgment (MFJ) went into effect. The BOCs were prohibited from providing "information services" (which had a very similar definition to the FCC "enhanced service" definition) under Section II.D.1 of the MFJ. The combined effect of the FCC decision and the MFJ caused voice messaging not to be offered to residential and small business customers by the BOCs.

The following events then transpired which permitted the BOCs to offer enhanced (information) services:

1985: The FCC begins Computer III proceedings with an emphasis on allowing BOCs to provide enhanced services subject to non-structural safeguards.

1988: (i) Judge Greene authorizes BOCs to provide "gateway" information services (which includes voice messaging under the MFJ).

(ii) BOCs file ONA plans designed to ensure competitors have Comparably Efficient Interconnection (CEI).

(iii) FCC begins approving CEI plans to allow BOCs to provide individual enhanced services on a structurally integrated basis.

1990: (i) Ninth Circuit remands Computer III to FCC.

(ii) FCC authorizes BOCs to continue to provide enhanced services on an interim basis according to CEI plans.

competitors are subsumed into the overall measure of output when a consumer welfare calculation is done.

⁷AT&T had already designed and begun to install the services on an unseparated basis prior to the FCC's Computer II decision, which required structural separation.

1991: (i) Judge Greene removes information services restriction totally.
(ii) FCC issues remand order to allow structural integration of BOC enhanced services and approves final BOC ONA plans.

1992: BOCs begin offering integrated enhanced services under ONA plans.

1994: Ninth Circuit again remands Computer III to FCC.

1995: FCC authorizes BOCs to continue to provide enhanced services under the CEI plan regime.

From an economist's viewpoint, this regulatory imbroglio has created significant social costs. As we will discuss in the next section, consumer welfare would have been significantly higher if BOC voice messaging services had been offered sooner. Furthermore, government, management, and lawyers' time has been spent debating the issue of structural separation for nearly 20 years. A rational cost-benefit analysis demonstrates that the benefit to consumers of having BOC enhanced services available far exceeds any possible cost that hypothetically might arise. Indeed, we quantify these potential benefits and costs in the next sections of this paper.

As the above regulatory history demonstrates, the key dates were 1988 and 1991, when the MFJ restrictions were removed and the FCC decided to allow BOCs to offer enhanced services on a structurally integrated basis. Beginning in 1988, pending approval of final ONA plans, BOCs were permitted to offer specific enhanced services on a structurally integrated basis, subject to FCC approval of CEI plans for those services. The FCC ultimately approved blanket authorization for BOCs to offer enhanced services without a structural separation requirement in 1991. Thus, we consider data from 1988, 1991, and the most current data available to analyze the evolution of the enhanced services market.

Overall, information services are a large part of the U.S. economy, with estimated revenues of \$135.9 billion. According to the Commerce Department, information services is

"among the fastest growing sectors of the economy."⁸ Some of the largest and most sophisticated companies in the U.S. participate in this sector, including GE, AT&T, MCI, IBM, Sears, Microsoft, TCI, Time Warner, and American Airlines.

The individual segments of the information service industry, all of which use telephone lines as well as other distribution media in varying ways, are also thriving. Enhanced (information) services have grown 15 percent a year since 1991 to reach an estimated \$15 billion in 1994. Some 65 percent of these services are delivered on-line, with the remainder delivered on CD-ROM or using wireless or other distribution technologies. Data processing and network services are another segment which has grown by over 14 percent a year since 1991 to over \$50 billion by 1994. This segment includes services such as credit card authorizations, data entry, payroll processing, electronic mail, and electronic data interchange. Lastly, computer professional services have grown by about 9 percent a year to reach \$65 billion in 1994. This segment includes systems integration and consulting services. Thus, no anticompetitive effect of BOC entry into information services has occurred. Overall, the market continues to be very competitive.

The market segment for enhanced (information) services is particularly relevant here since this segment includes many of the business which the BOCs have entered. This segment, including on-line databases, value added network services, voice messaging, and electronic mail, grew from \$7.5 billion in 1988 to \$10.2 billion in 1991 and to \$13.6 billion in 1993, which is the last available data.⁹ Market growth in 1993 was 16 percent, which was higher than the year before. The market is expected to maintain that rate of growth for the next few years.¹⁰

Value added network (VAN) services have grown from \$0.5 billion in 1989 to \$3.4 billion in 1993. Subscribership to all videotex gateways increased from 715,000 in 1988 to 6.3 million

⁸U.S. Dep't. of Commerce, 1994 U.S. Industrial Outlook 25-21 (1994).

⁹U.S. Industrial Outlook: 1990 at 29-2, 1992 at 26-1, 1994 at 25-2. The Commerce Department discontinued this publication in 1995.

¹⁰1994 U.S. Industrial Outlook 25-2 and 29-7.

in 1994.¹¹ Electronic mail has become widely available since 1988. E-mail subscribership has grown from 6 million in 1989 to over 13 million in 1993.¹² E-mail revenues increased from \$574 million in 1989 to \$740 million in 1991 and an estimated \$1.2 billion in 1994. BOCs have not attained anything remotely close to a dominant position in any of these enhanced market segments.

Similarly, BOC entry into the voice messaging market segment has led to lower prices and higher demand. Between 1989 and 1991, users of voice messaging CPE more than doubled, from 5.3 million to 11.6 million, and now accounts for \$1.3 billion annually.¹³ The overall voice messaging market segment grew from \$665 million in 1989 to \$1.1 billion in 1991 and \$1.54 billion 1994. Forecasts of future growth have the market doubling to over \$3 billion by 2000.¹⁴ Forecasted annual growth over this period is 12 percent. Thus, output has expanded rapidly in the voice messaging market segment which demonstrates the pro-competitive effects of changes in FCC and MFJ regulation.

Since 1991, prices have decreased by 50 percent for most voice messaging equipment. Equipment improvements such as voice messaging boards for PCs have become widely available at relatively low cost. Thus, voice messaging equipment continues to place a significant price constraint on network-based voice messaging services.

Prices for voice messaging services have decreased greatly since BOC entry into the market segment. Frost and Sullivan states that in 1990 the average monthly fee for voice messaging was just under \$30. By 1993 the average monthly fee decreased by about 50%, or a decrease in price of over 20 percent per year. Frost and Sullivan attributes this "dramatic drop" in prices to the growth of a more competitive market, driven by the lower-priced voice messaging offered by the BOCs and the independent LECs. By 2000, Frost and Sullivan predicts a further

¹¹Boston Globe, Jan. 14, 1995, at 61.

¹²1990 U.S. Industrial Outlook 31-4; 1994 U.S. Industrial Outlook 29-7.

¹³NATA, 1991 Telecommunications Market Review and Forecast 135 (1991); NATA, 1993-94 Telecommunications Market Review and Forecast 171.

¹⁴NATA, 1993-94 Telecommunications Market Review and Forecast 171; Frost & Sullivan, U.S. Voice Messaging Services Markets, Report 5172-63 (Dec. 1994).

decrease in the average fee for voice messaging by about another 50 percent (pp. 3-10 to 3-11).

Regarding current market conditions, Frost and Sullivan reports that:

"Today, there are numerous providers of voice messaging services in a highly competitive market. The entrance of the BOCs and independent LECs in the late 1980s create fierce competition for the local/regional service bureaus....The RHCs and independent LECs have developed the residential end-user market, which previously had little interest in or knowledge of voice messaging." (p. 1-4)

Lower prices, increased competition, and development of a new market segment have been the result of BOC entry into the voice messaging segment of the enhanced services market. All of these outcomes lead to increased consumer welfare. This pro-competitive outcome stands in stark contrast to FCC and MFJ regulatory policy in the early and mid-1980s which led to an absence of BOC participation in enhanced service markets. Consumer welfare was lower and the economic efficiency of the U.S. economy was lowered by these misguided regulatory policies. Thus, as we discuss below, the FCC policy of structural integration and removal of the MFJ restrictions on information services provision by BOCs has led to a significant increase in consumer welfare which easily exceeds over \$1 billion per year.

We finally observe that the voice messaging market is very unconcentrated. The BOCs and GTE combined account for about one-sixth of voice messaging revenues combined. However, individual LEC market shares are much lower. BOC market shares for voice messaging services range from around 6 percent for Bell Atlantic, BellSouth, and Pacific Telesis, to about 1 percent for NYNEX. Competition continues to be very strong for voice messaging customers, with both service prices and equipment prices decreasing at a rapid rate.

IV. Consumer Welfare from New Telecommunications Services

A. The Economic Importance of New Telecommunications Services

Regulatory restrictions which are designed to facilitate competition may often have a potentially much larger negative effect on consumer welfare which cannot be ignored: restrictions

on the introduction of new goods and services.¹⁵ Consider the introduction of a new telecommunications service which is not presently available -- call it home distance learning over personal computers. The demand for such a service will exist, as will a demand curve, which is a schedule of quantities which would be bought at each monthly service price. See Figure 1. At lower prices more service is demanded, but even at quite high prices some demand remains from people who value the service quite highly. If the service were offered at price p_1 in Figure 1, all those individuals who would have paid more than p_1 receive the difference between what they would have paid and what they actually pay in increased consumer welfare. This added value is called the consumer's surplus and is the area labelled A in Figure 1. Consumer's surplus is a dollar measure of increased consumer welfare, and is almost universally accepted by economists and policy makers in valuing the effects of economic policy.

Now suppose because of regulation that home distance learning is not offered. For instance, if structural separation is required, the cost of the BOCs providing home distance learning might well be sufficiently high that, at prices which would be charged, insufficient consumer demand would exist to make the economic return on the investment high enough to justify the investment.¹⁶ The home distance learning application would then not be offered. No matter how much an individual is willing to pay, he cannot buy the home distance learning service. Indeed, the price might as well be infinity because no one can buy the service. If regulation is changed and the service is introduced, the price decreases from infinity to p_1 . To measure the gain in economic welfare, we use the change in price from the "virtual or reservation price" which causes zero demand, price p_2 in Figure 1, to the price that will be charged, which

¹⁵The welfare effect of delayed introduction of new goods or services has not been considered in most analyses of the economic effects of regulation. See, e.g., P. Joskow and N. Rose, "The Effects of Economic Regulation," in R. Schmalensee and R. Willig, Handbook of Industrial Organization, vol. II (1989) for a review of the effects of regulation.

¹⁶While the demand curve in Figure 1 demonstrates that some consumer demand would exist unless prices became quite high, at high prices caused by high costs demand may not be enough to cover the fixed costs of providing the service. Fixed costs of providing enhanced services are almost always a large component of the overall costs of providing the service.